

STATE OF NEW JERSEY TECHNICAL COMMENTS

Comments on **Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; Proposed Rule.** 80 Fed. Reg. 64966 (proposed October 23, 2015) (to be codified at 40 C.F.R. Parts 60, 62, and 78).

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I. PREAMBLE

In this document, the State of New Jersey reluctantly submits recommended revisions to numerous elements in the above-captioned Proposed Rules, notwithstanding the State's conclusion that the Proposed Rules cannot be redeemed through revisions. We provide these recommendations with the expectation they will assist EPA in developing an entirely new proposal that respects the limits of EPA's authority under Section 111(d) of the Clean Air Act ("the CAA" or "the Act").

EPA's Proposed Rules are intended to supplement the adopted Section 111(d) Final Rule or Clean Power Plan (Final Rule or CPP), which sets performance standards for existing fossil fuel-fired power plants. New Jersey repeats again its long-held contention that EPA is precluded from regulating power plants under Section 111(d) because that source category is already regulated under Section 112.

Even if EPA has authority to regulate existing power plants under Section 111(d), which it does not, the CPP violates Section 111(d) by establishing standards of performance that are not attainable through actions at the regulated facility. Most of these comments on EPA's Proposed Rules would be unnecessary if EPA had promulgated its performance standards for existing sources consistent with Section 111(d). As recommended in New Jersey's comments to the proposed CPP, EPA is only authorized to establish performance standards that are achievable by the regulated sources.

In these Proposed Rules, EPA has now proposed a mass-based cap and trade program that is inconsistent with Section 111(d) because it does not set performance standards for sources and, moreover, the caps are unachievable by the regulated emission sources without shutdown or reduction in operation. The rate-based program does contain performance standards, but those standards are not achievable by existing source operations.

Performance standards under Section 111 for both new and existing sources must be achievable with available technology or fuel switching at the regulated source. While EPA's Section 111(b) performance standards for new natural gas combined cycle (NGCC) units are readily achievable at the source, EPA's Section 111(d) rate-based performance standards are considerably more stringent than the new source standards and are not achievable by existing NGCC units.

The proper reading of Section 111 requires performance standards for existing sources to be less stringent than performance standards for new sources because Congress recognized that the reduced useful life of existing sources affects their ability to incur the costs necessary to achieve emission reductions. Properly read, Section 111(d)'s "remaining useful life" provisions should have enabled EPA and the states to set less stringent standards and, in some instances, allow existing sources to reach their remaining useful life and be replaced by new sources subject to Section 111(b).

EPA cannot disagree that trading is not expressly authorized under Section 111 and is not allowed because Section 111 requires performance standards to be achieved by each regulated source, while emission trading allows sources to avoid meeting the adopted performance standards. Accordingly, our comments below in opposition to EPA's Proposed Rules, including its proposed rules allowing emission trading, do not constitute support of EPA's Clean Power Plan or these Proposed Rules. In the unlikely event portions of the Final Rule and Proposed Rule survive appeals, these comments may be useful in crafting a proposal that is consistent with Section 111 of the Clean Air Act.

II. OVERARCHING COMMENTS

For more than three decades, New Jersey has been a leader among states in reducing emissions from the electric power sector. And our 2011 Energy Master Plan, which we have recently updated and released, reflects New Jersey's continued commitment to leadership in this area.

- From 2001-2012, New Jersey reduced the rate of CO₂ emissions from its power sector by 33%.
- New Jersey is well-ahead of EPA's proposed standards for new power plants, with carbon emissions (CO₂) from our newer power plants under construction prior to January 8, 2014, now in operation, significantly below the limits established for new sources under Section 111(b).
- New Jersey's existing fossil-fueled power sector collectively meets EPA's proposed limits under Section 111(b), even though new source standards do not apply to existing sources.
- Complementing our low-emission fossil fuel power sector is New Jersey's nuclear power fleet, which accounts for approximately half of our annual in-state generation, and has been producing emission-free, base load power for over 3 decades.
- The United States Energy Information Administration (USEIA) reports that in a comparison of state power sector CO₂ emission rates for 2012, only five states had lower CO₂ emission rates than New Jersey. In fact, New Jersey's emission rate was less than half that of most other states, significantly lower than all of the 14 states within the PJM regional transmission organization and lower than seven of the nine Regional Greenhouse Gas Initiative (RGGI) states. USEIA reports a CO₂ emission rate for New Jersey's power sector of 543 lb/MWh in 2012 and 538 lb/MWh for 2013.
- For 2013, USEIA ranks New Jersey amongst the states with the lowest rates of emission for SO₂ and NO_x, 48th and 45th lowest, respectively.
- New Jersey continues to meet its own Renewable Portfolio Standard (RPS) goals, and ranks among the top states in the country for total installed solar capacity.
- Between 1990-2013, New Jersey reduced its reliance on less efficient, imported power by 70%, and now only imports approximately 12% of its total electricity usage. Between 2011 and 2014, in-state electricity generation statistics moved increasingly to more efficient sources: coal in-state generation was reduced by half, from 8% to 4%; renewables doubled, from 2% to 4%; natural gas increased by one-third, from 33% to 44%; and nuclear held steady at approximately 50%.

Despite these accomplishments, New Jersey struggles along with most all other states to make sense of over 3,000 pages of rules and proposed rules and support documents released on October 23, 2015, which defy well established technical and legal convention under the long history of EPA's administration of the Clean Air Act. Specifically, these proposed rules ignore decades of energy profile data tracked by the USEIA and long considered the gold standard for measuring emissions from the power sector. Under USEIA's widely accepted accounting for emission rates, New Jersey's power sector had achieved by 2012 a CO₂ emission rate of 543lb/MWh, which is well below the 812 lb/MWh level set

for New Jersey in the Clean Power Plan. EPA has jettisoned USEIA's approach, thus failing to credit New Jersey for its enormously successful emission reductions that were achieved by 2012.

As noted in the cover letter, the State of New Jersey opposes adoption of the EPA's proposed Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; Proposed Rule. 80 Fed. Reg. 64966 (proposed October 23, 2015) (to be codified at 40 C.F.R. Parts 60, 62, and 78).

We have attached specific technical comments on the Proposed Rules and emphasize here seven overarching, fundamental issues that apply equally to both the Clean Power Plan Final Rule and the Proposed Rules.

1. The Clean Power Plan Final Rule was incomplete, as demonstrated by the need for these significant Proposed Rules. Among other things, the Final Rule was incomplete because it did not include the trading schemes included in the Proposed Rules now under consideration, did not specify how allowances would be allocated, and it failed to address how a federally-imposed implementation plan would be handled. In addition, there are some 200 instances in the Proposed Rules in which EPA plainly admits it still does not have a clear path forward for reconciling the inconsistencies in the Final Rule. Since the Final Rule was not a logical outgrowth of the original proposed rule, the public was denied a fair and proper opportunity to comment on provisions that were contained in the Final Rule, but not in the original proposed rule. Therefore, the Final Rule should be re-proposed along with these Proposed Rules. This will allow the states and the regulated community to evaluate and comment on the Clean Power Plan in its entirety, and not piecemeal, as the current scheme requires.
2. Contrary to the unambiguous requirements of the Clean Air Act, EPA has set more stringent emission requirements for existing electric generating units (EGUs) under Section 111(d) than it has set for new EGUs under Section 111(b). It makes little sense that EPA has established emission limits for existing sources that EPA does not require new sources to achieve with the latest technologies. This could have the perverse effect of shutting down existing plants that are actually performing as well or better than new plants, only to replace those plants with new plants that would not be required to perform as well.

Among the unintended consequences of EPA's requiring more stringent limits for existing sources than new sources is the issue of "leakage," a term intended by EPA to describe illogical and counterproductive consequences of the Final Rule in which affected EGUs regulated under Section 111(d) could be either improperly advantaged or disadvantaged over new EGUs that are regulated under Section 111(b). Leakage is an issue that impacts both mass- and rate-based trading programs, although EPA only addresses it for regulatory purposes under mass-based trading programs. EPA's attempt to resolve this issue of its own creation could yield odd, disparate results, such as discouraging the development of new, more efficient power plant technologies or, the continued operation of older, less efficient power plants beyond all reason. And EPA is unsure what will occur, given the uncertainties of the proposed trading regimes and the market-based values of Allowances and Emission Rate Credits (ERCs) under its proposed trading programs. For example, the cost of compliance for existing units needing to purchase ERCs or Allowances could render these units uncompetitive with new EGUs with similar or lesser air technologies, merely because

of the differences in regulatory costs under Section 111(d) and Section 111(b); i.e., it could be more economical to shut down an existing unit and build an identical new one, simply to avoid the Section 111(d) regulation. Conversely, EPA's attempts to address leakage could advantage existing older units with lesser control technologies that new plants with more efficient technologies would be unable to obtain financing.

The "leakage" issue has generated much debate amongst stakeholders and consultants invested in explaining or promoting EPA's Clean Power Plan, with the only consistency being that all agree that it is both legally and technically challenging to resolve. Simply put, there is no easy, fail safe solution to the "leakage" issue created by EPA.

3. The Clean Air Act does not authorize EPA to regulate "beyond the fence" or establish a cap and trade program under Section 111(d). Similar to EPA's approach in setting more stringent limits for existing sources than new sources, EPA's overreach in establishing a cap-and-trade program may well perpetuate the continued use of EGUs that produce higher levels of NO_x, because companies can buy credits rather than lower emissions. NO_x emissions pose significant threats to human health because it forms ozone, which exceeds the federal health standards in New Jersey.

Disturbingly, EPA confuses the public on the subject of CO₂, which have no direct localized or regional health impact, with the control of criteria pollutants, which have localized or regional health impacts such as cancer, asthma and other cardiopulmonary diseases. In the instance of the Final Rule and Proposed Rules, EPA has it quite backwards; the direct control of criteria pollutants will result in significant reductions in CO₂ emissions, as New Jersey has amply demonstrated, and not necessarily the other way around.

- a. Title VI of the Clean Air Act authorizes cap and trade for "acid rain" criteria pollutants –NO_x and SO₂. And Section 111(d) does not provide cap and trade authority; rather, Section 111(d) requires performance standards. Nor does Section 111(d) permit EPA to treat the entire power grid as a "source of emission" for purposes of regulating "beyond the fence," a first-of-its-kind, and unnecessary, maneuver by EPA under the Clean Air Act. EPA should adhere to its jurisdiction and expertise by regulating sources of emissions. Instead of engaging in attempts to assert extra-jurisdictional authority as the Final Rule and Proposed Rules clearly attempt to do, EPA should encourage the development of more efficient energy sources, improvement of aging grid infrastructure and the development of new pipeline infrastructure by streamlining its review and permitting authority and assisting other agencies in the exercise of their related authorities.
- b. There is a dark side to the multi-state, trading ready, cap and trade programs which EPA now promotes. As an initial matter, EPA assigns CO₂ emission rate goals to 27 states for 2030 that are less stringent than the emissions rate of the New Jersey power sector in 2012. Many of these sources are located in the very states that remain high for NO_x emissions, which present serious health issues for our residents, as well as residents of their own states. As these states assess their options under the Proposed Rules, generation sources are candidly advocating a mass-based planning approach in order to prolong the life of less efficient sources

through an Allowance system, and ensuring states that it will be cheaper to adopt such an approach. But New Jersey has witnessed the results of EPA's NOx trading regime, whereby out-of-state power sources have found it less costly to shut down air pollution control equipment and purchase allowances, with polluting emissions enveloping regions of New Jersey and either creating or exacerbating high ozone days. In promoting an approach for which it has no authority under Section 111(d), EPA has squandered an opportunity to address cross-state air pollution and will perpetuate localized health impacts.

- c. The Final Rule and Proposed Rules go well beyond EPA's jurisdiction for the regulation of emissions from existing electric generating units, and invade the jurisdiction of the Federal Energy Regulatory Commission (FERC), the North American Reliability Corporation (NERC), regional transmission organizations such as PJM, and the jurisdiction exclusively reserved to the states under the Federal Power Act (FPA). 16 U.S.C. § 791 et seq. States retain "traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, cost and other related state concerns." Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 461 U.S. 190, 205 (1983).

Without invitation by Congress, EPA has jumped into this arena and decided it has the expertise to set individual goals that will uniquely affect costs and the availability of power in each state. This is most apparent in EPA's setting of individual mass based goals, which EPA has benchmarked to emissions in 2012, without regard to whether a particular state economy was in a boom or bust economic cycle, or the unique, increased costs that states will incur for alternative types and supplies of energy. Setting mass based caps today for 2022 and beyond can serve as an economy killer, particularly for states looking to recover from economic doldrums or to grow industries important to that state or our nation's future. Businesses cite labor and energy costs as primary factors in their determination of whether to locate in a state, expand operations in a state or to cease business within a state. And state authority, not EPA authority, should make such judgments and determinations. EPA is entrusted to regulate sources of emission under Section 111(d), and nothing further.

4. Fundamental to the viability of the Clean Power Plan is the development of robust markets of Allowances, Emission Rate Credits (ERCs), energy efficiency (EE), the development of zero-emission energy, renewable energy (RE), low-emitting fossil sources (NGCC and CHP) and transmission and distribution infrastructure. But the Clean Air Act provides no authority for EPA to ensure that any or all of these trading markets will develop. In fact, the Final Rule and Proposed Rules are likely to inhibit the ability to accomplish objectives of the Clean Power Plan. The Clean Power Plan actually fosters national financial trading markets for Allowance and ERC trading programs that are unlikely to address local and regional criteria pollutant emission reductions.

- a. As part of EPA's abrupt change in course between the proposed and final Clean Power Plan Final Rule and these Proposed Rules, EPA requires that trading of Allowances can only occur amongst a subcategory of states that choose mass-based plans, and the trading of ERCs are limited to a subcategory of states that implement rate-based plans. This places states in the position of trying to predict how the Final Rule and Proposed Rules will play out, how markets and technologies will develop and what other states will choose. For purposes of Section 111(d) of the Clean Air Act, states should not be presented with these unnecessary dilemmas by EPA.
- b. The expected development of Allowance and ERC trading programs will not likely foster fair and equitable markets devoid of gaming and fraud, and there is no authority for EPA to protect against these threats. As markets develop on a national scale, the likelihood of gaming or fraud will increase. In consideration of energy companies with multi-state holdings, decisions on pricing and sale and purchase of Allowances and ERCs will take on a national strategy more related to competition than any air quality concerns, and beyond the ability of any present modeling exercise to reliably predict. Similarly, third parties with intentions to promote or disfavor whole categories of electric generation may seek to retire or dump Allowances or ERCs.

The Final Rule and Proposed Rules have significantly challenged the limited resources of state air and energy regulators. We should not assume that the problems these rules may create can be resolved, particularly when, at the outset, there is little understanding of those complexities.

- c. The Final Rule and Proposed Rules wrongly presume that either the private sector is readily able and willing to meet the expectations therein, or that the states at some level can control or incent private investments in more efficient power production. This has simply not been the case in New Jersey, a deregulated state, wherein a legislative effort to promote newer, more efficient natural gas generation was challenged. The legislation in question, referred to as the Long-Term Capacity Agreement Pilot Program (LCAPP), was developed to incent the development of 2,000 MW of natural gas combined cycle generation. The LCAPP law was challenged and, on October 11, 2013, the U.S. Federal District Court held that the LCAPP law interferes with FERC's ability to run a competitive capacity market and is, therefore, unconstitutional under the Supremacy Clause of the U.S. Constitution (a comparable action by the Maryland Public Service Commission was overturned for federal preemption). The United States Court of Appeals for the Third Circuit affirmed the District Court's ruling. A petition for certiorari was filed by the State with the U.S. Supreme Court.

The denial of Maryland's program was appealed to the Fourth Circuit, which upheld the ruling and prompted a petition for certiorari. To date, the Court has not acted on New Jersey's petition; however, on October 19, 2015, the Supreme Court granted certiorari to review the Fourth Circuit's determination that the Maryland Public Service Commission's Generator Order is preempted by federal law.

The Maryland Generation Order and New Jersey LCAPP Act are factually similar and share the same legal question of whether state-sponsored contracts for differences that require participation in the PJM capacity market are preempted by federal law. Thus, despite the Court neither granting nor denying petitions for certiorari of New Jersey's LCAPP Act, the Court's ruling in the Maryland case will determine the fate of LCAPP.

In sum, the states of Maryland and New Jersey were faced with similar circumstances in which the private sector was simply not investing in and developing newer and more efficient electric generating units, and instead continued operation of older, less efficient units. And efforts by both states were opposed by the private sector, PJM and FERC, and their respective legislative efforts blocked in separate federal courts. While we await a decision from the Supreme Court, it is clear that EPA's presumptions of what states will be able to accomplish under the rules is not supported by most recent experience.

- d. The Final Rule and Proposed Rules present unrealistic expectations for the development of pipeline and electrical infrastructure necessary to transmit the fuel and energy necessary for compliance purposes and may serve to shift the cost from the private sector to state taxpayers. Within the past few years, the private sector has approached numerous states with the prospect of developing inter-state merchant transmission lines to distribute electricity produced by out-of-state natural gas and land-based wind facilities. Under the Final Rule and Proposed Rules, these same companies will now assess the demands these rules have placed upon individual states and will likely propose a cost-shift based upon individualized requirements of a state for compliance purposes. EPA's interference with present day markets may result in less efficiency than the private markets would likely provide and add increased costs to consumers.

Under the Final Rule and Proposed Rules, the compliance period for states starts in 2022, six years away. But some of the more recent, noteworthy projects for transmission development have taken eight years for government approvals and individual states along the right-of-way have presented roadblocks along these rights-of-ways. In sum, the vast improvements in infrastructure required for compliance will likely not fit within the projected timeframes of the Final Rule and Proposed Rules.

- e. The Final Rule and Proposed Rules leave completely unsettled the method for allocating Allowances under mass-based programs. Positions taken by stakeholders show that this is a highly contested arena, with expectations that range from windfalls to wipeouts, and that bear relation more to politics and economics rather than the underlying purpose or objectives of Section 111(d). State allowance allocation programs present contentious issues and take years to develop and then likely additional years to resolve legal disputes.
- f. Neither the Final Rule nor Proposed Rules reconcile the unresolved compliance obligation conflict between EGUs regulated by EPA under the Clean Air Act and Load Serving Entities regulated by state utility commissions under state utility laws.

While EPA seeks comment on this conflict, this casts light on one of many unintended consequences of EPA's overreach beyond its statutory jurisdiction.

- g. Under mass-based plans, the Final Rules and Proposed Rules do not account well for states that increase in-state generation or states that increase their export of electrical energy. States that decide to rely less on imports of out-of-state sources will increase CO₂ emissions beyond what EPA considered in setting state caps. In the case of increased exports of electricity, over which states have little control, states may exceed their cap even if their load remains constant or is diminished by aggressive implementation of EE.

In the first instance, New Jersey aggressively pursued newer, more efficient in-state generation in order to rely less on older, less efficient, generation from out-of-state. In the second instance, New Jersey has experienced the development of electric generation facilities essentially devoted to supplying higher priced out-of-state markets. As with many of the conflicts raised by EPA's regulatory overreach, this issue remains unaddressed and unresolved in the Final Rule and Proposed Rules.

5. Neither the Final Rule nor the Proposed Rules do anything to ensure the viability of America's nuclear industry, which accounts for nearly 20% of the nation's energy supply, 60% of the nation's zero emission power production, and is an essential component of EPA's target goal for CO₂ reductions by 2030. In this regard, New Jersey is denied credit for its nuclear power which comprises approximately 50 percent of our in-state generation. Given the impacts of continued low prices of natural gas on competition, EPA's added promotion of RE and EE for compliance purposes will increasingly deny nuclear power a level playing field, disrupting normal markets and disadvantaging the nuclear power sector

Close to home, EPA denies credit for nuclear uprates taking place prior to 2013, which eliminates credit for approximately 600 MW of uprates at three of New Jersey's nuclear facilities that represent 3,600 MW of zero- emission power capacity.

At a White House summit on nuclear energy and climate change, EPA had nothing to offer proponents of this critical zero-emission power source, with Janet McCabe, U.S. EPA's acting air chief, stating, "It is not within our power in this rule to drive a place for any particular kind of generation."¹ This remark remains puzzling in view of the great lengths EPA has taken to promote renewable energy and energy efficiency for compliance purposes, neither of which are sources of emissions that EPA has authority to promote or regulate. Both the Final Rule and Proposed Rules have neglected a critical component of the power grid for maintaining reduced CO₂ emissions and achieving targets by 2030.

6. In the Final Rule and Proposed Rules, EPA is not crediting any renewable energy and energy efficiency projects implemented prior to 2013. Between 2001 and 2012, New Jersey invested more than \$3.27 billion in renewable energy and energy efficiency projects. Included within this amount are investments in energy efficiency programs for low income households under the Comfort Partners Program, which expends between \$20-\$35 million per year on energy efficiency measures. EPA seeks to promote and duplicate most of the

¹ "White House celebrates nuclear but offers modest help," EE News, November 9, 2015.

goals already set by states like New Jersey, which already have initiatives underway. The Final Rules and Proposed Rules appear to do nothing more than interfere with progress and threaten the ability of states such as New Jersey to control their energy future.

- a. The Final Rule and Proposed Rules creating Emission Rate Credits (ERCs) also make clear that ERCs are not fungible with the Renewable Energy Credits (RECs) produced, sold and purchased as part of New Jersey's Clean Energy Program and long-established Renewable Portfolio Standard (RPS). While New Jersey was on a path to meet its RPS of 22.5% renewable energy by 2021, which is projected to entail billions of dollars in ratepayer investments overall, it remains questionable whether this program could continue as a fiscally responsible investment or whether fiscal prudence warrants the suspension of New Jersey's current program because of the incompatibility with EPA's program. Canceling existing RE and EE subsidies for pre-2013 facilities and suspending current state RE and EE programs is not an appealing option for states like NJ, although it would be fiscally prudent to do so. And states where no such prior investments have or will be made in RE and EE are better off for having delayed such investments in efficient energy until a state plan is submitted.
- b. States that have on-going, robust RE and EE programs are subject to two forms of penalties under EPA's Final Rule and Proposed Rules. First, EPA provides no credit for RE and EE facilities constructed prior to 2013, even if these facilities continue to provide zero-emission benefit during the compliance period of the rules. Second, EPA disallows participation in the CEIP program for RE and EE facilities constructed after 2012, but before a state plan is submitted.
- c. The Final Rule and Proposed Rules interfere with well-established state programs that promote EE and will likely result in ratepayers paying twice for the same result. Fed. Reg. 65018. Under the Final Rule and Proposed Rules, whereby EGUs purchase EE-generated CO₂ ERCs for compliance purposes, the costs associated with the purchase of those ERCs will be paid by ratepayers that have financed the EE project through NJ's Societal Benefits Charge (SBC). In many states, as in NJ, Load Serving Entities (LSEs) are regulated by public utility commissions and, since EGUs are not regulated by New Jersey's utility commission, there is no easy fix for the regulatory problem created. And this will present the unfair result of charging ratepayers twice for the same EE; i.e., ratepayers finance the EE project through SBC charges and then are charged again by the EGU for the EE-ERCs that the project created. EPA requests comment on this issue but has no clear solution to the conflict that the Final Rule and Proposed Rules cause between energy regulation and air regulation. As mentioned above, the Final Rule and Proposed Rules create unnecessary issues for existing state programs by regulating "beyond the fence" and interfering with existing jurisdictional authority.
- d. NJ has developed and implemented its own Energy Efficiency (EE) and Renewable Energy (RE) verification and tracking protocols and should not be burdened by an additional federal EM&V program to accomplish the same purpose.

The State of New Jersey does not support the requirement that demonstration of future performance of an RE or EE project be verified by an independent third party, as part of EPA's proposed EM&V protocols. Existing protocols of the New Jersey Board of Public Utilities, "Protocols for Measuring Resource Savings," provide sufficient rigor, without incurring the added expense of third party verification. Additionally, PJM's Generator Attribute Tracking System provides tracking protocols with sufficient rigor for tracking renewable energy generation. See <http://www.pjm-eis.com/getting-started/about-GATS.aspx>

- e. The time period for project development under the CEIP is unrealistic and is unfair to states with on-going, well-established programs for RE and EE that cannot be reasonably resolved. Fed. Reg. 64978.

The Final Rule and Proposed Rules provide an unrealistic, narrow window for states to earn extra credit under the CEIP program. Specifically, RE wind and solar projects are eligible if construction is initiated after states submit compliance plans and these projects produce zero emission energy during calendar years 2020-2021. These same limitations are applicable to EE projects in "low income" areas, an as yet undefined phrase under the rules. The period of time to develop CEIP-qualifying projects is too short and the CEIP is likely to only capture projects that might fall within the compliance window by mere happenstance, as opposed to the program serving as an incentive.

The most representative example of time requirements to "ramp up" a major EE /RE initiative is presented by New Jersey's implementation of the American Recovery and Reinvestment Act (ARRA), which took years to organize and staff.

New Jersey's existing federally-funded low-income EE program, the Weatherization Assistance Program, is required to use the definition of "low income" specified by USDOE and LIHEAP, which is based on HUD's definition. New Jersey's state-funded low-income program, the Comfort Partners Program, also uses this federal definition. EPA should adopt a definition of "low income" that is consistent with that used by other federally-funded low-income EE programs, and EPA should avoid designing the CPP CEIP Program in a manner that is inconsistent with existing state-funded and federally-funded energy efficiency programs for low-income households.

More information on the Weatherization Assistance Program and the Comfort Partners Program:

NJ WAP (income eligibility determination); USDOE Weatherization Assistance Program notice 15-1, Attachment 2, Effective Date January 16, 2015 -

http://www.waptac.org/data/files/Website_docs/Government/Guidance/2015/WP N-15-1-FAO-Update.pdf

NJ Comfort Partners – (income eligibility determination)

<http://www.njcleanenergy.com/residential/programs/comfort-partners/comfort-partners#guidelines>

- f. EPA's Regulatory Impact Analysis (RIA) is inadequate for assessing the potential cost impacts for individual states. In addition, the documentation and methodologies supporting EPA's IPM modeling are not clear and appear incorrect in many instances. Most importantly, since EPA has set unique emission targets for every state, it is appropriate for the RIA to include thorough projections of individual state compliance costs so that states can review for accuracy and provide comments as necessary.
7. The State of New Jersey urges EPA to approach the regulation of CO₂ emissions by staying within the confines of Section 111(d) and by avoiding the complexities and unintended consequences of the current Final Rule and Proposed Rules. We can achieve more at less cost by working with the states and current private sector trends. We need to capitalize on America's newfound energy advantage.

If EPA intends to proceed with developing regulations to reduce carbon emissions from the power sector, we urge EPA, at a minimum, to revise its approach as follows:

- Eliminate "outside the fence" measures from the rules;
- Set uniform national performance standard based on Section 111(b) NSPS performance limits;
- Use the timing flexibility in Section 111(d) to provide varying compliance deadlines which consider the remaining useful life of the existing EGUs in each state; and
- The federal government should encourage nuclear and renewable energy, energy efficiency, and promote the improvement of the nation's aging electrical transmission infrastructure, and promote pipeline infrastructure to capitalize on the nation's petroleum and natural gas energy advantage. EPA should not overreach its jurisdiction by including such measures in the regulation of sources of emission.

III. ADDITIONAL TECHNICAL COMMENTS

1. General Technical Comments

a. The Clean Power Plan Rulemaking Is Incomplete

Until EPA completes the adoption of the Proposed Rules, the underlying CPP Rulemaking is incomplete. The Proposed Rules contain substantive requirements and provisions, not just procedural requirements. Also, confirmation of the measurement and verification protocols for renewable energy (RE) and energy efficiency (EE) is needed for both mass-based and rate-based rules, as well as the Clean Energy Incentive Program (CEIP). Until these Proposed Rules are finalized, states cannot fully evaluate the CPP's options and select one or more paths for possible implementation.

b. The Entire Rule Package Should be Re-proposed

The scope of EPA's changes to the final CPP rulemaking and the unanswered questions in these Proposed Rules makes it appropriate for EPA to re-propose the entire CPP Rule package after it has fully reconsidered the rules.

2. USEPA Regulatory Impact Analysis (RIA)

a. General Comments about the RIA

USEPA's Regulatory Impact Analysis (RIA) for the CPP (Regulatory Impact Analysis for the Clean Power Plan Final Rule, EPA-452/R-15-003, October 23, 2015) is inadequate for assessing the potential cost impacts for individual states. In addition to the confusing and difficult to understand documentation for the IPM model runs, critical cost data such as allowance/Emission Rate Credit (ERC) prices are not provided. The IPM modeling predicted no increase in New Jersey solar or wind generation during the CPP compliance period for any of the three cases (base, rate-based and mass-based). It appears that the IPM model predicted that New Jersey would achieve CPP compliance by the same amount of EE for both rate-based and mass-based cases. In addition, the IPM model predicted that New Jersey would achieve no EE savings until 2020. These are not realistic future scenarios. Since EPA has set different limits for each state, it is appropriate for the RIA to include thorough projections of each state's compliance costs.

The base case emission rate in 2030 for the continental U.S. is predicted to be 1,157 lbs. CO₂/MWhr (Table ES-3 on page ES-6 of the RIA and EPA Demand Side EE Model Illustrative Scenario and Calculations by OEA), while the base case for NJ is predicted to be 569 lbs. CO₂/MWhr (IPM Base Case State Emissions EXCEL file and EPA Demand Side EE Model Illustrative Scenario and Calculations by OEA). On this basis, New Jersey is expected to be less than 50% of the emission rate of the continental U.S., absent the CPP. Yet, EPA reduces New Jersey's rate based emissions by an additional 26.9%, while the national rate based emissions would be reduced by 18.6%. This additional and

disproportionate reduction for NJ, on top of all that has been accomplished to date, comes at a higher cost to NJ than EPA’s RIA implies.

It is extremely difficult to determine the costs of EPA’s illustrative compliance plans at the state level. This information is essential for states to evaluate the Proposed Rules options.

States have long had concerns about the use of IPM modeling. The use of IPM modeling in the RIA leads to absurd results for NJ, which precludes its use in modeling of potential impact to generation facilities within our State. The IPM results presented by EPA indicate illogical results such as shutdowns, or curtailment of generation facilities which are unlikely and are not explained.

b. Base Year

The IPM files posted by EPA on its website for the “illustrative” cases support two different CO₂ emission factors for NJ (see table below); however, both of these are well below the average for the continental U.S. as a whole. In effect, setting 2012 as the CPP base year and requiring NJ to obtain further CO₂ emissions reductions penalizes the state by giving it no credit for the substantial reductions already achieved. EPA should review and eliminate discrepancies in its emissions data and, more importantly, give “early adopter” states like NJ appropriate credit for the below-average CO₂ emissions factors.

	Total	
NJ kTons CO ₂ in 2030:	20,444	Source: EPA Base Case RPE Excel file
NJ GWh in 2030:	69,270	Source: EPA Base Case RPE Excel file
NJ Emissions factor in 2030:	590	
NJ kTons CO ₂ in 2030:	20,660	Source: EPA Base Case State Emissions Excel file
NJ GWh in 2030:	69,270	Source: EPA Base Case RPE Excel file
NJ Emissions factor in 2030:	596	
CO ₂ emissions delta (tons)	215,000	

c. Examples of RIA Inadequacy for New Jersey

Following are examples of the inadequacy of the RIA for NJ. EPA should re-run the RIA with lower fuel costs and higher renewable energy costs in EMAC area, as well as providing the results for individual states.

- i. For the Eastern Middle Atlantic Council (EMAC, which includes NJ, DE, and portions of PA, MD and VA), EPA projects that in 2025 solar PV will be 1.26% of the

generation mix, and in 2030, solar PV will be 11.66%. (Source: calculations from EPA Base Case RPE Excel file.)

- ii. New Jersey has the largest solar capacity program in the Northeast and 3rd in the US behind CA and AZ, with over 1,500 MW of installed capacity in over 41,000 locations. New Jersey's solar Renewable Energy Portfolio Standard (RPS) is set by statute to achieve 4.01% by May 31, 2027. New Jersey started its solar program in 2001 and will increase its solar capacity from 0 to 4.01% in 27 years. The RIA shows an increase from 4% to 11.66% in just 5 years, which is not realistic.
- iii. A greater than nine-fold increase in the solar PV percentage share is unrealistic unless there is a dramatic decrease in the cost of solar (to less than \$1 per watt) and an increase in solar efficiency (to over 20%). Also, the cost of this much additional solar does not appear to have been accounted for in the RIA, while the CO₂ reductions corresponding to reduced fossil generation are accounted for. This makes the calculated cost of the CPP for EMAC unrealistically low.
- iv. In EPA's analysis of the U.S. rate-based and U.S. mass-based compliance costs, EPA appears to assume that EE quantities and costs will be the same for both rate-based and mass-based programs. That is unrealistic. The incentives for EE are much greater for the rate-based case. It is more likely that rate-based programs will have higher amounts of EE than mass-based programs because EE is one of the primary means to directly comply with a rate-based standard.
- v. EPA estimates that New Jersey's annualized EE costs for an 8.2% reduction in electric demand would be over \$500 million per year in 2030 (EPA Demand Side EE Model, Illustrative Scenario and Calculations by OEA). This does not appear to recognize the fact that EE costs will increase in the future, especially for mature EE programs. Also, this does not include any costs related to incremental renewable energy, including NJ's share of the 11.66% of total electric demand from solar in the EMAC area. The cost of solar PV is currently much higher than the cost of EE. (Solar Renewable Energy Credits (SRECs) currently cost over \$250 per MWhr.) EPA projects EE costs to be about \$80 per MWhr in 2030. For New Jersey, an increase in our solar PV electric production by 10% of the total electric sales would correspond to about 8 million MWhrs of solar, which would cost \$800 million per year, assuming a dramatic reduction in solar PV costs to \$100 per MWhr. It is this increased cost that adversely affects industries that cannot achieve offsetting savings with EE. Applying current statistics of 75 million MWh of consumption, NJ's current solar electric capacity at 1,500 MW at a capacity factor of 1200 MWh/MW, and current installed costs of \$3 per watt, then even at \$1 per watt and 20% capacity factor this increase over the 4% solar RPS to 11.66 % will cost roughly an additional \$10 Billion. New Jersey ratepayers will have to pay for this over time (an assumed 10 years) at an added \$1 billion per year.
- vi. EPA's projected net cost of CPP depends heavily on the cost of EE and the savings from reduced fuel use based in part on that EE savings. Small changes in the

relevant price assumptions can cause significant impacts on the net costs and benefits. For example, EPA assumes a \$5.73 per 1000 cubic feet price of natural gas, which is considerably higher than today's natural gas cost in NJ. If the actual future price of natural gas turns out to be substantially lower than predicted in the RIA, the costs of the CPP will be substantially higher for compliance cases that result in a reduction in the use of natural gas. This is especially relevant for NJ where over 95% of the electric generation by CPP regulated sources is gas-fired. When revised gas fuel costs are used, the CPP costs for NJ could be much higher than projected in the RIA.

- vii. **1% Annual Increase in EE:** EPA assumes that energy efficiency programs will reduce electric demand by 1% per year. New Jersey has been implementing energy efficiency programs since 1985 and has achieved less than 0.5% decrease per year in electric demand. Under wholesale electric market deregulation, the NJ Board of Public Utilities (NJBPU) has been managing EE statewide since 2001. The greatest annual reduction in electric demand has been about 600,000 MWhrs. These programs cost about \$140 million per year. We expect EE program costs to increase in the future as the less expensive EE is implemented and more expensive EE remains. EPA's assumption of a 1% per year increase in EE is unrealistic, especially for a state with a mature EE program.
- viii. **The RIA does not Reflect True Ratepayer Price Increases because of Failure to Account for Allowance and ERC Prices:** EPA's modelling does not reflect the true costs to ratepayers, because it does not account for the price that regulated entities will charge for the ERCs they purchase or the allowances they use. Elsewhere, in these comments, we discuss the likelihood of the ratepayer paying twice for the same energy efficiency and renewable energy costs. We also discuss the likelihood of the ratepayer paying for all allowances used by a regulated facility, even if the allowances are distributed for free. It does not appear that EPA has accounted for the actual market price of allowances and ERCs in the RIA projections of costs to ratepayers. EPA incorrectly presumes the ratepayer will pay only for the actual costs of RE and EE. However, the incompatibility of the CPP and energy regulation will likely result in increases in the price of electricity that are greater than the costs of the RE and EE programs that EPA requires for CPP compliance.

d. Other Detailed Comments on RIA

- i. **EGU Codes:** The long alphanumeric codes assigned by EPA to individual Electric Generating Units (EGUs) make it extremely difficult to determine which codes belong to which EGUs. This in turn makes it extremely difficult to verify or context the EGU-specific data published by EPA. EPA should provide a crosswalk between the EGU codes used in IPM and the NEEDS codes.
- ii. **Emission Rate Credits (ERCs):** It is extremely difficult or impossible to determine whether the published IPM data includes any New Jersey-related ERCs, either on the sell or the buy side. It appears that such New Jersey-related ERCs may be listed

under other states and/or under ISOs other than PJM_EMAC. EPA should give each state sufficient information to identify ERCs and allowances assumed to be bought or sold by that state, as well as the prices paid or received for those ERCs and allowances.

- iii. **Linden Cogeneration:** After a very substantial amount of work, NJDEP staff determined that the nine EGUs that are part of this facility serve New York City and are listed as part of the NYPOOL rather than as part of PJM_EMAC. EPA should provide each state with a list of EGUs that are outside that state's primary power pool.
- iv. **Certain Coal-Fired EGUs:** All of EPA's published IPM files appear to exclude four New Jersey coal-fired units, namely Hudson, Mercer 1 and 2, and one of B L England's units. However, all four of these are currently in operation. EPA needs to explain the omission of these EGUs from its IPM files.
- v. **New Renewables:** Except for 78 MW worth of new wind projected to be coming on-line in 2018 and the biomass discussed in the next paragraph, the IPM files for the illustrative cases include no new renewables in New Jersey. This is unrealistic. EPA should have used projections of future RE development for each state.
- vi. **Hypothetical Biomass EGUs:** The IPM files include two hypothetical biomass EGUs as part of the two Logan complexes. However, Logan is completely coal-fired and has no plans to create any biomass-fired EGUs.
- vii. **Unexplained EGUs:** The EGUs listed in Attachment A all include New Jersey in their names but also the names of various other states. NJDEP cannot determine the meaning of these items, and EPA should explain them.
- viii. **Energy Efficiency Costs:** As shown in Attachment B, the IPM files and EPA's energy efficiency file present different costs for New Jersey's EE programs, and EPA should either reconcile these or explain the reasons for the differences. EPA should also explain why the IPM rate-based RPE file lists two different EE "sources" for 2030.
- ix. **B L England #2:** The rate-based RPE file shows this facility as being in operation in every year through 2025; it is not shown in 2030, but it is shown again in 2040 and 2050. This unit is scheduled to be shut down in 2017 pursuant to an enforceable Administrative Consent Order.
- x. **Output Reductions:** As shown in Attachment C, the IPM RPE files for the Base Case and the two policy cases show very large reductions in GWh generated for two specific facilities, namely Red Oak and Linden Generation (not to be confused with Linden Cogen). Since these plants contain only NGCC EGUs, NJDEP sees no reason for such large decreases, and EPA should explain them. We have discussed this reduction with both facilities, and they also see no reason for a reduction in their level of operation.

- xi. **Non-Compliant Rate-Based Case:** EPA’s illustrative rate-based case results in a blended emissions factor in 2030 for NJ of 880 lb/MWhr of CO₂, rather than the required level for that year of 812 lb/MWhr. EPA should explain why the illustrative case does not appear to result in compliance.
- xii. **Unrealistic Solar PV Penetration:** The Base Case Regional Summary file shows a generation mix for EMAC for 2025 that includes 1.26% for solar PV; the corresponding figure for 2030 is 11.66%. NJDEP can think of no plausible scenario that would increase solar PV by that amount over that 5 year timeframe. EPA should explain the reasoning behind this extremely aggressive model result.
- xiii. **No energy efficiency in Base Case:** None of EPA’s Base Case files show any energy efficiency “capacity” or “generation.” This is not realistic, and EPA should explain the rationale for this assumption or model result.
- xiv. **Differing Fuel Prices:** Based on calculations from the RPE files, the 2030 fuel price in 2011 \$ per MMBtu for the facilities subject to CPP is \$5.65 in the rate-based case and \$5.40 in the mass-based case. The fuel prices for other years also differ. These differences are important because they affect the magnitude of the savings from energy efficiency. The reasons for the differences are not apparent, and EPA should explain them.
- xv. **Fuel Price Fluctuations:** The average fuel prices in 2011 \$ per MMBtu for the facilities subject to CPP exhibit temporal fluctuations, and the reasons for the price spikes in 2020 are not apparent. EPA should explain the price differentials and fluctuations identified below.

Year	Rate-Based \$2011/MMBtu for NJ EGUs subject to CPP	Mass-Based \$2011/MMBtu for NJ EGUs subject to CPP
2018	4.42	4.43
2020	5.15	5.08
2025	4.40	4.63

3. Renewable Energy and Energy Efficiency

a. **Solar is Not Fast, Easy or Cheap**

According to Lawrence Berkley Labs (LBL) annual report, “Tracking the Sun,” and the Solar Energy Industries Association’s (SEIA) annual reports, New Jersey has the largest solar capacity program in the Mid-Atlantic-Northeast and 3rd in the US behind CA and AZ, with over 1,500 MW of installed capacity in over 41,000 locations. New Jersey’s solar RPS is set by statute (N.J.S.A 48:3-87) at 4.01% by May 31, 2027. New Jersey started its solar program in 2001 and will increase its solar capacity from 0 to 4.01% in 27 years. The RIA shows an increase from 4% to 11.66% in just 5 years.

At \$1 per watt and a 20% efficiency of solar PV panel conversion of sunlight to electricity, this increase from the 4.01% solar in NJ's RPS to the increased level of 11.66%, as projected by the RIA, will cost New Jersey ratepayers approximately an additional \$10 billion over the current solar RPS costs. Because of the current solar RPS system for funding and financing solar, New Jersey ratepayers will pay for this cost over time and this could add \$1 billion per year to the cost of electricity. These calculations do not include financing, operations and maintenance, insurance and other variable/annual costs.

EPA's IPM assumptions on the speed and level of solar installation are not supported and appear to be unrealistic, based upon NJ's own experience. EPA should explain the basis for its projections.

See Attachment D for New Jersey solar installations by year as of 10/31/15. See Attachment E for New Jersey solar installed capacity by year. See Attachment F for New Jersey Clean Energy Program (NJCEP) solar project pipeline by interconnection type as of 10/31/15.

b. Incompatibility Between the CPP and Renewable Portfolio Standards in Deregulated States, Including New Jersey

The CPP puts the compliance obligation on generators (CFR 64971), while the NJ Renewable Portfolio Standard (RPS) puts compliance obligations on Load Serving Entities (LSEs). USEPA seeks comment on potentially allocating allowances to LSEs at: (CFR 65018). The CPP appears to assume that Renewable Energy Certificates (RECs) can easily be transferred between LSEs and fossil fuel generators. That is not the case. New Jersey does not regulate wholesale electric generation, while CPP requires regulation of power plants, which are wholesale electric generators.

- i. Utilizing RECs registered for RPS compliance for CPP compliance will require legislative changes which may not be feasible.
- ii. NJ ratepayers could be paying twice when LSEs satisfy RPS, and then again when wholesale generators purchase ERCs from the LSEs to satisfy the CPP obligation and then pass the cost of the ERCs on to the ratepayers.
- iii. Whether or not the LSEs can separate the ERCs from the RECs and pass the ERCs on to the wholesale generators is questionable.

c. Relationship of State Renewable Portfolio Standards to CPP ERCs

Renewable resources that count toward New Jersey's RPS should also qualify for CPP compliance, in essence, serving double compliance duty. Requiring states to procure additional RE, above that which is already legislatively mandated under an RPS, would be cost prohibitive. EPA's Proposed Rules are silent on this issue. A definitive determination on this point is essential.

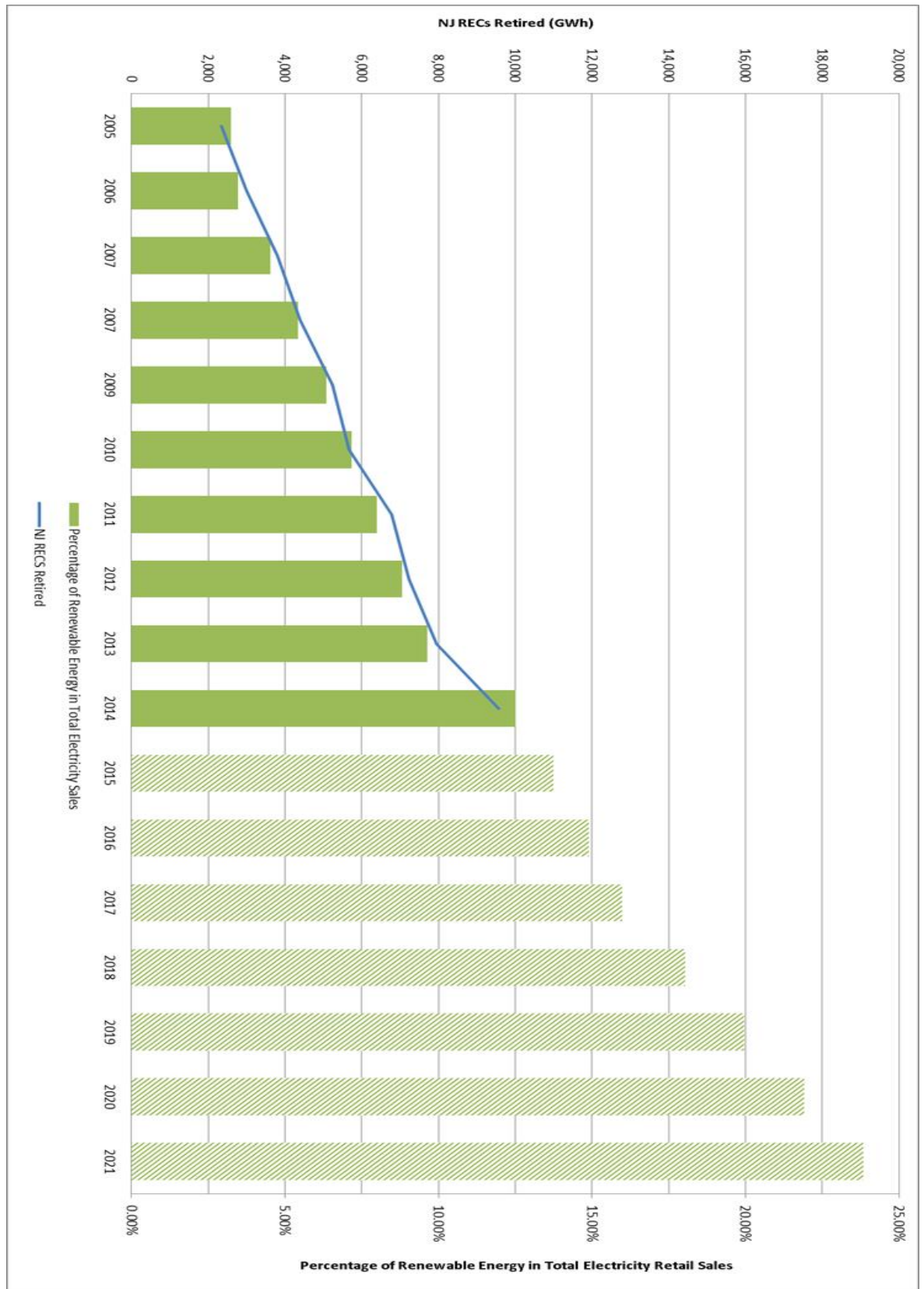
d. All Renewable Energy Should Be Eligible for CPP Compliance

The chart below shows New Jersey's RPS requirements and the progress up to 2015.

EPA's CPP does not recognize any RE from projects operating before 2013. Accordingly, NJ has been penalized for starting its RPS prior to 2013, with over 7 million MWhrs of pre-2013 RE projects excluded from CPP compliance. In addition, even more than 7 million MWhrs might not be eligible for CPP compliance if pre-2013 projects produce more than 7 million MWhrs of electricity per year during CPP compliance years.

In establishing an RE eligibility date of 1/1/2013, EPA may cause states to reduce their support for RE facilities that started operations prior to 2013. For example, if a state is faced with an RPS cost and a CPP cost, a state could choose to eliminate its state RPS program because of the federal CPP requirement. This is particularly true for states where the majority of RPS compliance is from out-of-state RE facilities. Without state support for pre-2013 RE facilities, these facilities may default on loans and/or cease operations.

EPA should credit all RE, no matter when constructed, for CPP compliance. In addition to providing fairness for early action on RE programs, this would simplify RE eligibility determinations under the CPP.



e. Out of State Renewable Energy Resources

The CPP indicates that RE in a mass-based state might not be useable in a rate-based state (CFR 65025). New Jersey's current RPS is achieved with mostly (about 80%) out-of-state RECs. New Jersey's limited ability to generate renewable energy in-state is due to its constrained geographic size, dense development, and limited climatic and natural resource features (solar radiance, on shore wind, and hydrologic assets). New Jersey, and other states that provide financial support to RE resources located outside their geographic boundaries, should be able to claim that generation for CPP compliance purposes, even if it is sourced from out-of-state resources. A power purchase agreement (CFR 64978) should not be a requirement for states wishing to obtain RECs or ERCs from outside their geographic border. Unless USEPA eliminates this potential requirement, states may have to choose between CPP compliance and RPS compliance when faced with an additional cost to their ratepayers. They may choose to minimize or eliminate their state RPS programs to minimize these additional costs.

A rate-based state should be able to register an ERC from an RE project located in a mass-based state for use by power plants in the rate-based state, without a power purchase agreement, using the same procedures as for existing RPS programs.

f. Purchase of ERCs from Renewable Energy Resources and Energy Efficiency Projects Should Not Be Construed as Emissions Trading

Emissions trading is the transfer of a compliance instrument representing an emission reduction from one regulated facility to another regulated facility. In a mass-based implementation of the CPP, the transfer of allowances between affected EGUs is clearly emissions trading.

However, the purchase of ERCs by an EGU from RE resources and EE projects for CPP compliance is not the transfer of compliance instruments between affected EGUs, and should not be construed as emissions trading.

Emissions trading programs and portfolio standards are different policy instruments. Purchase of ERCs from RE and EE is analogous to the purchase of RECs for compliance with a state RPS. State RPSs are not emissions trading programs. The implications of this distinction are addressed below, in subsection g.

g. Ensure Full Access to Renewable Energy Resources by All Affected EGUs

The opportunity to purchase out-of-state RE ERCs for CPP compliance should not be limited to states that authorize interstate emissions trading among affected EGUs in their state plans.

Under a rate-based implementation of the CPP, an affected EGU is prohibited from purchasing ERCs from a RE resource in another state unless the state in which the EGU is located authorizes interstate emissions trading. However, as discussed in subsection f above, the purchase of ERCs from an out-of-state RE resource should not constitute emissions trading.

This is a particular concern for states like New Jersey that have limited ability to generate RE in-state due to constrained geographic size, dense development, and/or limited climatic and natural resource features (e.g. solar radiance, wind, and hydrologic assets).

In the CPP, EPA emphasizes the importance of increasing the use of renewable energy to meet the program's 2030 CO₂ reduction goals (CFR 64804). EPA also states that an increase in renewable energy is a proven way to reduce CO₂ emissions at affected EGUs of all types at a reasonable cost (CFR 64804). The failure to allow full use of RE by all affected EGUs, regardless of the plan type adopted by its state, is inconsistent with the CPP's goal of a long-term shift away from fossil generation and toward more widespread zero-carbon generation nationwide.

h. Ratepayers May Pay Twice for Energy Efficiency

Request for comment on this issue is located in the allocation discussion of the CPP (CFR 65018).

A portion of New Jersey's Societal Benefits Charge (SBC), paid by electric and natural gas customers, serves to fund EE programs. New Jersey does not have an Energy Efficiency Portfolio Standard, and there is no compliance obligation/trading market for EE, as NJ has for RPS compliance. Since EPA's CPP creates a federal program in which EE is an ERC-generating activity, this changes the dynamics for NJ's current EE programs. If regulated entities now begin to use EE-generated ERCs for CPP compliance, costs associated with purchasing those ERCs from EE projects, which have already received EE funding from the SBC, would be passed through to ratepayers. Effectively, ratepayers could end up "paying twice" for EE projects as a result of the CPP.

4. Evaluation, Monitoring and Verification

a. Energy Efficiency and Renewable Energy EM&V Protocols

With respect to the proposed Evaluation, Monitoring and Verification (EM&V) requirements for EE, EPA is injecting itself into an area that is currently overseen by state energy offices (SEO) and/or public utility commissions (PUC). This may require state environmental agencies, which have little or no experience in this area, to provide duplicative functions and potential conflicts. It is more appropriate for the State Energy Office or Public Utility Commission (the legally authorized entities in each state which validate EE savings) to certify in the CPP plan that the state's adopted EM&V protocols are sufficient. Allowing use of "deemed savings" methodologies as the basis for EM&V submittals under the CPP is critical to the functioning of EM&V. Deemed savings is the methodology the NJBPU currently uses to quantify most EE savings under its Clean Energy Program, in an efficient and cost effective manner.

Additional comments concerning the proposed CPP EM&V protocols are as follows:

- i. Ultimately, the baseline should be the state's electricity use over time. While project baselines may be relevant for large projects, the proof will be the trend in electricity usage over time. In reviewing the EM&V guidance from EPA, it appears that EPA seeks reporting and tracking of EE differently than that employed by NJBPU and most state energy programs currently reporting EE savings (New Jersey EE data is recorded in annual, and lifetime savings). EPA should defer to the States on the use of baselines.
- ii. While EE is currently the most cost effective tool for reducing emissions, it is the one with the most uncertainty with regard to measurement because of human-influence factors. New Jersey's adopted Energy Savings Protocols are conservative to address factors such as "free riders," "free drivers" and other influences which can affect delivered EE results. New Jersey Protocols are based on savings over the adopted State energy building code, not on a remaining life calculation.
- iii. The EPA EM&V guidance should defer to the State's energy office (SEO) and/or the public utility commissions when the SEO or PUC has adopted Energy Saving and Generation Protocols. This can be a simple process of requiring a certification filed by the SEO/PUC designee that the state's adopted protocols are consistent with IPMVP, the DOE Uniform Methods Project (UMP) or the EPA SEE Action EE Program Impact Evaluation Guide or a regional EM&V guide, such as the Northeast Energy Efficiency Partnership (NEEP). This process was used in the federal ARRA EE funding program.
- iv. The EE annual timeframe for reporting ERC creation should be set by the State, not required as calendar year annual reporting. New Jersey reports mostly on a fiscal year basis, not a calendar year, and in some cases, even reports on an energy year (EY) basis, which in PJM runs from June 1 to June 30th.

- v. The guidance on page 15 of Section 2.4.1 states that deemed savings should be limited and only applied to simple projects for which the performance characteristics and location specifics are well known. This is too limiting. New Jersey has documented cases where strict measurement by M&V protocols, such as required in PJM's Energy Efficiency Measurement and Verification Manual 18B, could result in a 30% cost on the energy savings without a countervailing 30% benefit. Strict adherence to measurement M&V on a project-basis could unreasonably increase the cost of EE measures. Deemed saving can be used on large complicated projects by subdividing them into smaller components or simpler sections. Project-based M&V should be only required in custom or new measures where a regional/state protocol or DOE guidance is not previously established. Once a State or regional protocol is developed, the project-based M&V should be able to defer to the deemed savings. .

b. Accounting for Renewable Energy Generation: Third-Party Verification

The EPA solicits comment on how existing reporting systems can play a role in assuring that each MWh of RE generation is uniquely identified and recorded to avoid double counting (CFR 64990, 65004, 65005, 65007).

- i. The NJBPU "Protocols for Measuring Resource Savings" provide sufficient rigor, without incurring the added expense of third-party verification. While EPA indicates it will accept other existing protocols outside of what it intends to propose, it is unclear what is acceptable to EPA.
- ii. The State of New Jersey does not support the requirement that demonstration of future performance of an RE project be verified by an independent third party, unless NJ determines such verification is appropriate for a particular project.
- iii. If EPA does finalize a requirement for some level of third-party verification, EPA should expressly allow state energy offices or PUCs to serve as delegated third party verifiers if the state energy offices or PUCs run and manage EE or RE programs.

5. Rate Based Plans and Emission Rate Credits

a. ERC-Generating Activities

- i. The broader set of ERC-generating activities allowed under the proposed rate-based Model Rule provisions should be included in the Federal Implementation Plan (FIP) (CFR 64989, 64990, 64995, 64997, 65002, 65005). The proposed FIP provisions only include onshore utility-scale wind, utility scale solar PV,

concentrated solar power, geothermal power, new/uprate nuclear and utility scale hydropower. The Proposed Rules are more inclusive, allowing all wind, all solar, geothermal, hydropower, wave, tidal, qualified biomass, waste-to-energy, new/uprate nuclear, non-affected combined heat and power, energy efficiency/demand side management. Various types of demand-side EE should also be eligible measures for ERC issuance under the federal plan, such as state and utility EE programs, project-based demand side EE, state building codes, state appliance standards, and conservation voltage reduction.

- ii. The smart grid and distribution automation upgrades New Jersey and other states are undertaking should be ERC-generating activities under the CPP. Smart grid will allow customers to advance their use of distributed generation and demand-response, which in turn will lower electricity usage. These upgrades will also reduce transmission losses.
- iii. The EPA requests comment on the inclusion of additional emission reduction measures as eligible for ERC issuance under the rate-based federal plan (CFR 64994). Landfill gas should be included as an eligible ERC-generating biomass feedstock, generating ERCs equivalent to the MWh of electric production. Additionally, conversion of the methane burned into its CO₂ equivalent reduction should also be credited with ERCs.
- iv. The EPA solicits comment on other requirements that should be specifically in the final Model Rule related to biomass (CFR 64996). The NJBPU uses a three-prong test for sustainability of biomass feedstocks for RPS compliance (CFR 65005). Feedstocks must be sustainably cultivated and harvested, must comply with all air permits issued to the combustion facility, and any resulting ash from the process must be properly disposed of in accordance with state regulations. These standards could also be applied to the use of biomass feedstocks for Clean Power Plan compliance.

b. State Measures Program for Rate Based States

Rate-based states should be allowed to use state measures. Just as a state measures plan may be attractive to a mass-based state, a state measures plan may be attractive to a rate-based state.

Having the dual rate-based emissions standards as the backstop could be applied to individual power plants if a rate-based state measure program does not produce enough ERCs to comply on a statewide basis. This backstop is equivalent to a commitment for caps on emissions from each power plant, which would be applied if a mass-based state measures program does not meet the overall state cap.

Use of a state measures program may be critical to address the problem of source requirements for RE being incompatible with energy regulation of load serving entities, as described in subsection 3b.

c. States Should Have the Option to Issue ERCs to a State Agency for Certain State-Supported Projects

In states with ratepayer-supported clean energy projects, the purchase of ERCs from those projects by EGUs would cause ratepayers to pay twice for the same project.

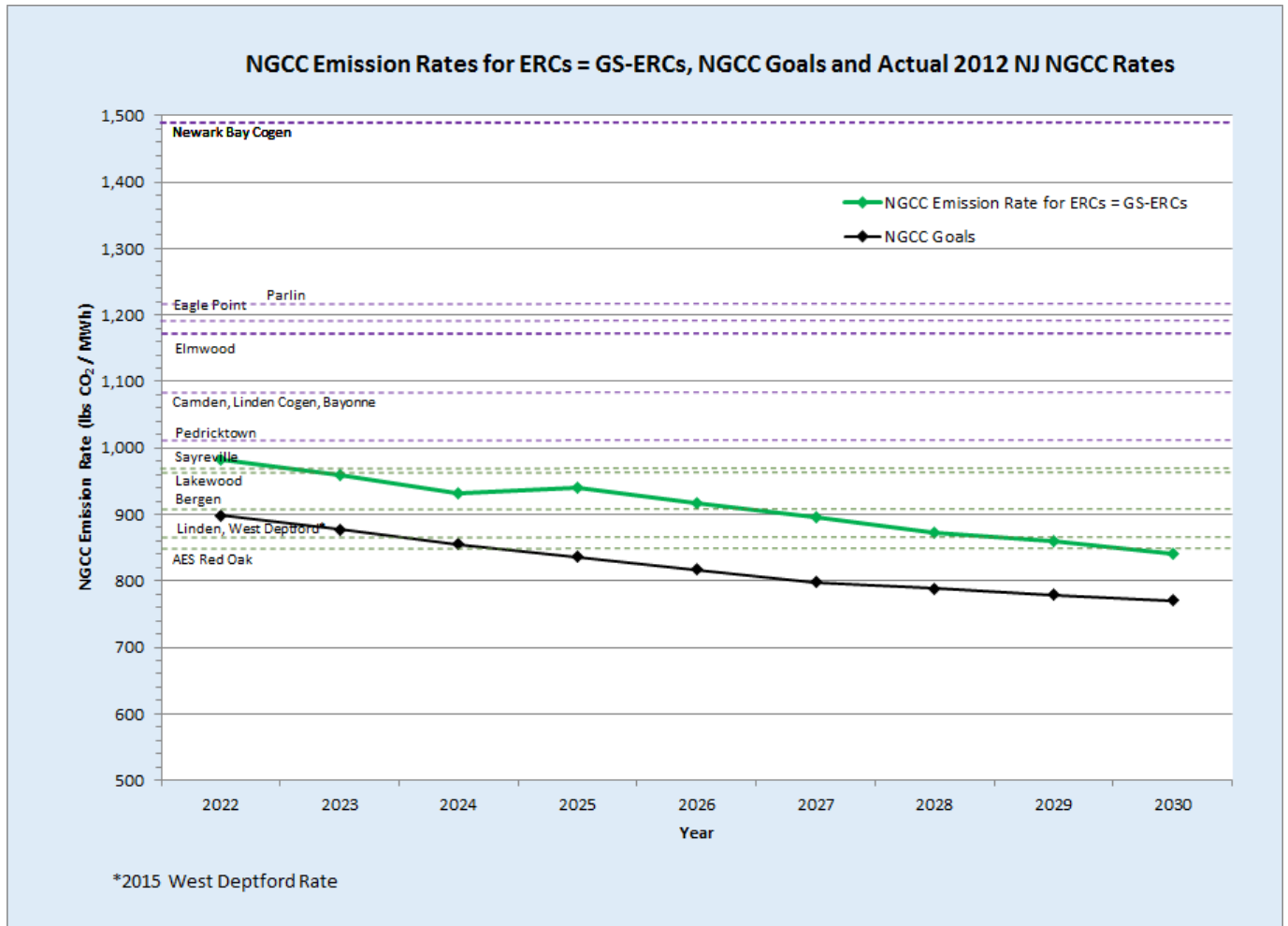
New Jersey has a robust RPS, as well as a suite of ratepayer-supported programs and incentives for EE, combined heat and power, and other clean energy projects that could generate ERCs under the CPP.

EPA should explicitly allow states to issue ERCs to a state agency when an ERC-generating project is funded in part or in whole by ratepayers in that state. This mechanism would enable states to prevent their ratepayers from being charged twice.

d. Gas-Shift ERCs

New combined cycle natural gas (NGCC) should be eligible to generate gas-shift (GS) ERCs. Replacement of some older less efficient NGCC with newer, more efficient NGCC units, and maximizing the use of the most efficient units, makes the most sense. That is encouraged if new units can generate GS ERCs.

The following chart is a summary of CO₂ emission rates for compliance-obligated existing NGCC facilities in New Jersey and their ability to generate GS ERCs. The more efficient facilities generate more GS ERCs and require less regular ERCs (as opposed to GS ERCs) to comply with the 771 lb/MWhr standard for existing NGCC units.



The dedication of GS ERCs to boiler compliance provides a relatively small amount of ERCs to support a small amount of coal fired boiler operation. This is appropriate to encourage a reasonable level of fuel diversity and to help ensure reliability of electric supply during very cold weather.

e. ERC Banking and Borrowing

The EPA solicits comment on whether there should be a limit to the number of ERCs that can be banked (CFR 65010). There should be unlimited banking of ERCs, including the banking of Interim-Period ERCs. If ERCs are to be used for compliance, ERCs must first be created and then bankable for future compliance.

EPA requests comments on whether ERC-borrowing should be allowed (CFR 65010). Borrowing should not be allowed because repayment is uncertain, particularly if a company shuts down.

6. Mass-Based Plans and Allowances

a. Methods of Allowance Distribution

The EPA solicits comment on the proposed and other described methodologies to distribute allowances (CFR 65015). Distributing allowances for free would represent a windfall for affected EGUs, while developing a program to auction allowances takes many years. Distributing allowances in perpetuity to the companies producing electricity during a fixed period is not fair to those that remain in business after a CPP-regulated facility shuts down. Units that do not operate should not get an allocation, or should be phased out of an allocation. For example, allocation based on a 3-year moving average of annual electric generation was successfully implemented in NJ's NOx allocation program for CAIR.

b. The Leakage Provisions are Unnecessary and Inappropriate

EPA should not adopt the proposed leakage provisions.

In footnote 78 on pages 3-19 of the RIA (repeated below), EPA states that the anti-leakage set-asides likely avoid about a 1 percent erosion of emissions reductions.

"EPA also analyzed a mass-based scenario without any set-asides using IPM, which produced a 2030 emission reduction estimate of 31 percent, relative to 2005 levels (approximately a 1 percent erosion of emission reductions due to leakage to new sources of emissions, relative to both the mass-based scenario that includes the RE set-aside, and the rate based scenario.) This equates to approximately 24 million short tons of CO₂. The scenario can be found in the docket for the final Rule, and is called *Mass-based without set-aside*."

In addition, IPM modeling commissioned by M.J. Bradley & Associates LLC "...suggests that EPA's proposed output-based allocation to certain existing NGCC units and a 5% set aside of allowances for renewables has a negligible impact on projected emissions". (M.J. Bradley & Associates LLC, EPA's Clean Power Plan – Summary of IPM Modeling Results. January 13, 2016)

- i. If leakage to new units would actually reduce the effectiveness of the CPP by less than 1%, that is insufficient to justify the complexity of the leakage provisions.

- ii. The effectiveness of a 5% set aside for renewables for addressing leakage is highly questionable. While this leakage provision results in more renewables, it does not prevent leakage to new units.
- iii. New units should be encouraged, not discouraged. New NGCC units are the most efficient, lowest CO₂ emitting, fossil fired units available. By 2022, new units may be less than 771 lbs. of CO₂ per MWhr.
- iv. If EPA had adopted a 111(d) program which is consistent with 111(b), leakage to new units would not be an issue. Existing facility limits should not be more stringent than new facility limits.

7. Emissions Trading

a. Trading Between Rate Based and Mass Based States Should Be Allowed

If EPA adopted performance standards consistent with 111(d), this would not be an issue. If trading is allowed under 111(d), the scope of interstate trading should be expanded to include trading between rate-based states and mass-based states (CFR 64976, 64977, 64981, 65011). A fully-integrated trading system would benefit all states, regardless of plan type.

b. Appropriate Market Monitoring Activities

USEPA requests comment on appropriate market monitoring activities, which may include tracking ownership of allowances or ERCs, oversight of the creation and verification of credits, and tracking market activity (CFR 64977). If trading is allowed under 111(d), then:

- i. EPA should establish robust market monitoring practices to detect and prevent anti-competitive conduct in allowance and ERC markets.
- ii. EPA should expressly allow aggregators and marketers to own and trade allowances and ERCs in the same manner as these entities currently own and trade RECs in REC trading markets. Aggregation of this sort is integral to efficient functioning of REC markets, and presumably allowance and ERC markets under the CPP as well.
- iii. EPA should require aggregators and marketers to register in an EPA-approved tracking system that records trades.

- iv. EPA-approved tracking systems must be designed to ensure transparent reporting on all trades, including a method to report price per trade within a competitive system.
- v. EPA should expressly allow load serving entities to hold allowances or ERCs if provided for in a state plan.
- vi. EPA should explicitly allow states to issue ERCs to a state agency when an ERC-generating project is funded in part or in whole by ratepayers in that state. This mechanism would enable states to prevent their ratepayers from being charged twice.

8. Clean Energy Incentive Program

a. Definition of Low-Income Community

EPA should adopt definitions of “low income person,” “low income household,” and “low income community” that are consistent with those used by other federally-funded low-income EE programs. EPA should avoid defining “low income” in a manner that is inconsistent with existing state-funded and federally-funded energy efficiency programs for low-income households and communities.

New Jersey’s existing federally-funded low-income EE program, the Weatherization Assistance Program, is required by its funder, the U.S. Department of Energy, to use the USDOE definition of “low income”.² USDOE’s definition of low income is based on federally-designated poverty guidelines. New Jersey’s state-funded low-income program, the Comfort Partners Program, also uses this federal definition of low income.³

b. Time Period for Project Development

The period of time to develop CEIP-qualifying projects is too short for states to gain the full benefit of the program (64978). CEIP-eligible projects cannot be undertaken until after a state plan has been submitted, which could be as late as September 8, 2018 – only 16 months from 2020. EPA should seek feedback from developers of solar, wind, and EE projects and programs on a realistic window for project development and implementation. EPA should also seek feedback about the time window from states that

² NJ WAP (income eligibility determination); USDOE Weatherization Assistance Program notice 15-1, Attachment 2, Effective Date January 16, 2015 - http://www.waptac.org/data/files/Website_docs/Government/Guidance/2015/WPN-15-1-FAO-Update.pdf

³ NJ Comfort Partners – (income eligibility determination) <http://www.njcleanenergy.com/residential/programs/comfort-partners/comfort-partners#guidelines>

implemented RE and EE programs with funding from the American Recovery and Reinvestment Act (ARRA).

c. Redistribution of Unused ERCs

Unused ERCs for EE and RE projects under CEIP should be redistributed among participating states.

d. Evaluation, Monitoring and Verification (EM&V) Requirements for CEIP Projects

New Jersey does not support the requirement that demonstration of future performance of all RE and EE projects be verified by an independent third party, as part of EPA's proposed EM&V protocols. Existing protocols of the New Jersey Board of Public Utilities "Protocols for Measuring Resource Savings," provide sufficient rigor, without incurring the added expense of third party verification. Additionally, PJM's Generator Attribute Tracking System⁴ provides tracking protocols with sufficient rigor for tracking renewable energy generation. <http://www.pjm-eis.com/getting-started/about-GATS.aspx>

e. Perverse Incentive to Delay New Renewable Energy and Energy Efficiency Projects

CPP also creates a perverse incentive to delay new RE and EE projects. Under the CEIP program, which provides extra credits for certain RE and EE projects, credit will only be granted for projects commencing operation or construction after a state submits its final plan (64978). This could potentially "freeze" development of new RE and EE projects until mid-2018.

9. Miscellaneous Technical Comments

a. Form of the Federal Implementation Plan

The USEPA has invited comment on which approach, either mass-based or rate-based should be selected if USEPA opts to finalize a single approach for every state in which it promulgates a Federal Implementation Plan (FIP) (CFR pg. 64968, 64969).

Without knowing how other potential state trading partners will choose, it is not possible to advocate for one system against the other. Both FIPs should be finalized, and the state should be able to select which FIP to apply if the state decides not to submit a plan.

⁴ <http://www.pjm-eis.com/getting-started/about-GATS.aspx>

b. 75% Annual Capacity (Instead of 55%) for the Under-Construction Newest NGCC Units in New Jersey

EPA should allocate under-construction NGCC units in 2012 at the 75% utilization level, provided the unit meets the 111(b) New Source Performance Standard (NSPS) of 1000 lb/MWhr. This is consistent with EPA's stated goal for NGCC units to operate at, or greater than, 75% of the annual capacity of the unit.

EPA uses a 55% capacity factor for calculating "under-construction" NGCC unit emissions, and then for setting state goals. In using the appropriate 75% capacity factor, which is also the EPA goal for these units to operate, the NJ 2030 goal becomes 18.0 million tons instead of 16.6 million tons identified by EPA for NJ.

- i. NJ's goal should be 18 million tons per year in 2030, instead of 16.6 million tons currently in the EPA table, to reflect the EPA goal to use the newest NGCC units at 75% capacity. One NJ NGCC unit is already operating at about 75% capacity.
- ii. EPA should have used the same emission rate for all the NGCC units that are under construction, regardless of what state they are located. The NSPS 111(b) 1000 lb/MWhr limit for new units would be the appropriate level to use for all under construction NGCC units in all states. In EPA's spreadsheet for calculating goals, NJ's 3 under construction NGCC units are allocated 949 lb/MWhr in the calculation of tons of emissions expected from these units. This is subsequently used in the determination of the mass based caps. The emission rate for these NJ under construction units (as well as those in other states) should have been 1000 lb/MWhr.

c. The Weighted Average Emission Rate for Existing Fossil Generators in New Jersey is Already Below the Standard Proposed Under 111(b)

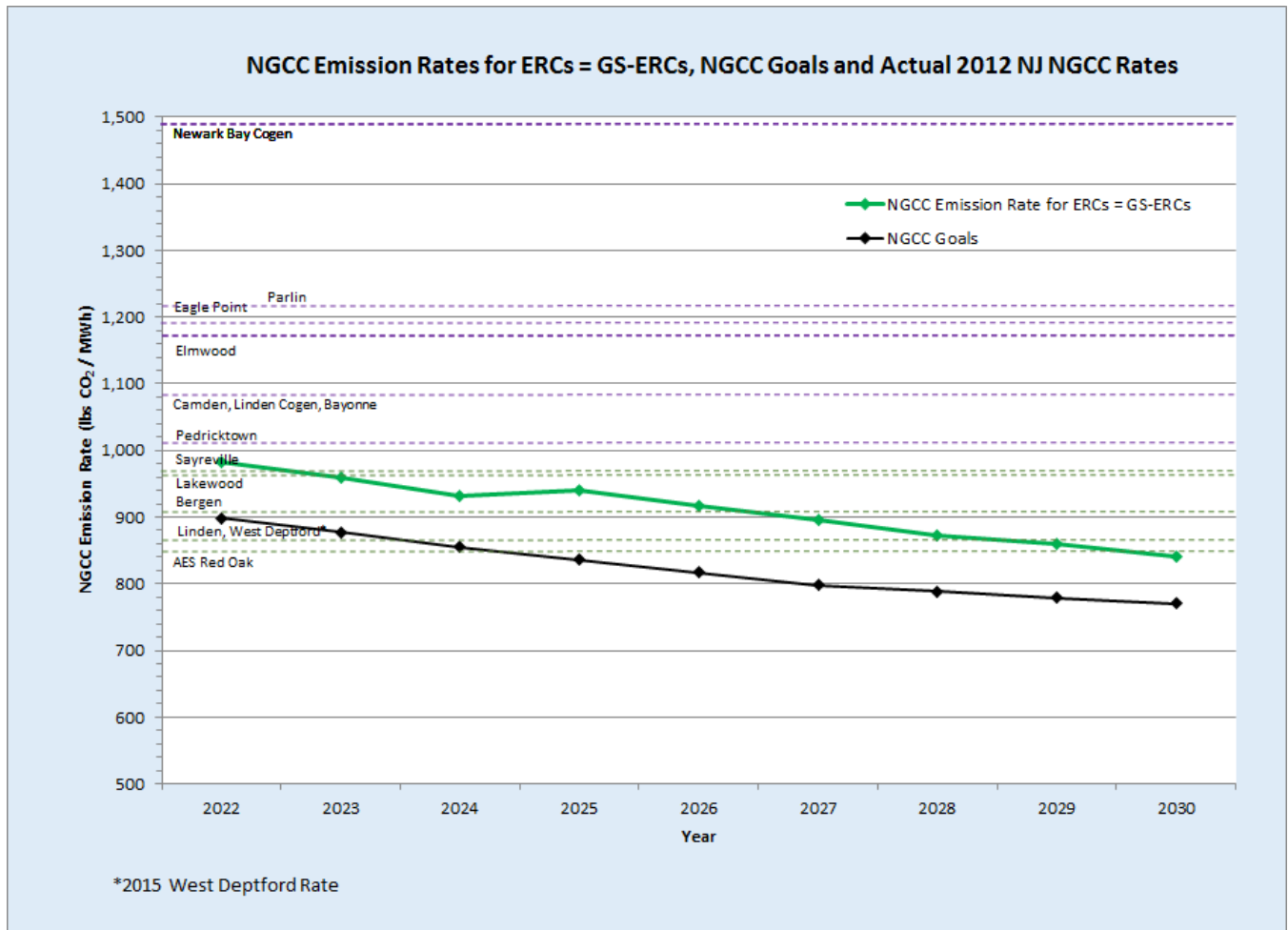
New Jersey's weighted average emission rate for the CPP regulated facilities is less than 1000 lb/MWhr, even when NJ's coal fired boilers are included at 2012 levels of operation. This is less than the standard for 111(b) regulated new NGCC units.

d. Intervening Compliance Obligations Between Compliance Periods

The EPA proposal does not propose intervening compliance obligations between compliance periods, but is soliciting comment on whether it should (CFR 65014). Compliance evaluation should be after each multi-year compliance period only, without intervening compliance requirements. An annual reporting of emissions and allowances or ERCs in hand is reasonable, in order that states can provide compliance assistance and plan for potential enforcement actions.

e. Combined Heat and Power Provisions

The following chart diagrams two New Jersey NGCC facilities' emission performance in CHP mode, and in non-CHP mode, to highlight the importance of counting thermal output in the calculation of emission performance of CPP regulated units. It is appropriate for EPA to provide credit for the useful heat provided by CHP facilities. (CFR 65005)



The accounting methods for CHP credit are implied, but not fully specified in the CPP Rules. The accounting methods are described verbally, not quantitatively, and it is unnecessarily onerous to translate the methods into quantitative terms and equations.

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- i. EPA should provide a technical support document on CHP, with example calculations, like EPA provided for GS ERCs.
- ii. CHP should be included in EPA's model Rule, so states do not need to create customized CHP accounting provisions.

Attachment A. Unidentified New Jersey-Related EGUs

Year	Type	EGU IPM Name		MW Avg Capacity	MW Dispatchable	GWh	C.F.	EGU ID
New Jersey--RE								
2018	New onshore wind	PJM_NJWYO11PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41944
2020	New onshore wind	PJM_NJWYO11PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41944
2025	New onshore wind	PJM_NJWYO11PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41944
2030	New onshore wind	PJM_NJWYO11PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41944
2018	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41949
2020	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41949
2025	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41949
2030	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41949
2018	New onshore wind	PJM_NJWYO13PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41954
2020	New onshore wind	PJM_NJWYO13PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41954
2025	New onshore wind	PJM_NJWYO13PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41954
2030	New onshore wind	PJM_NJWYO13PJM_EMAC:NJ(2018)	2018	26.0	61.6	161.9	30.0%	41954
New Jersey--EE								
2018	Energy efficiency	<i>EPA does not include EE until 2020</i>						
2020	Energy efficiency	PJM_NJEEFF1PJM_EMAC:NJ(2020)	2020	?	216.4	568.6	30.0%	42061
2025	Energy efficiency	PJM_NJEEFF1PJM_EMAC:NJ(2025)	2025	?	1,708.9	4,491.1	30.0%	42066
2030	Energy efficiency	PJM_NJEEFF1PJM_EMAC:NJ(2030)	2030	?	2,647.2	6,956.8	30.0%	42071
Maine								
2018	New onshore wind	NENGMEWYO52NENG_ME:ME (2018) 2018__NJ		26.0	38.52	187.437	?	77788
2020	New onshore wind	NENGMEWYO52NENG_ME:ME (2018) 2018__NJ		26.0	38.52	187.437	?	77788

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		NENGMEWYO52NENG_ME:ME (2018)						
2025	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77788
		NENGMEWYO52NENG_ME:ME (2018)						
2030	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77788
		NENGMEWYO53NENG_ME:ME (2018)						
2018	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77963
		NENGMEWYO53NENG_ME:ME (2018)						
2020	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77963
		NENGMEWYO53NENG_ME:ME (2018)						
2025	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77963
		NENGMEWYO53NENG_ME:ME (2018)						
2030	New onshore wind	2018__NJ		26.0	38.52	187.437	?	77963
New York								
		NY_ZNYWYO32NY_Z_C&E:NY(2018)						
2018	New Onshore Wind	2018__NJ		26.0	4.0	17.1	48.6%	79894
		NY_ZNYWYO32NY_Z_C&E:NY(2018)						
2020	New Onshore Wind	2018__NJ		26.0	4.0	17.1	48.6%	79894
		NY_ZNYWYO32NY_Z_C&E:NY(2018)						
2025	New Onshore Wind	2018__NJ		26.0	4.0	17.1	48.6%	79894
		NY_ZNYWYO32NY_Z_C&E:NY(2018)						
2030	New Onshore Wind	2018__NJ		26.0	4.0	17.1	48.6%	79894
2018	New Onshore Wind	NY_ZNYWYO53NY_Z_F:NY (2018)	2018__NJ	26.0	4.4	21.3	55.5%	81784
2020	New Onshore Wind	NY_ZNYWYO53NY_Z_F:NY (2018)	2018__NJ	26.0	4.4	21.3	55.5%	81784
2025	New Onshore Wind	NY_ZNYWYO53NY_Z_F:NY (2018)	2018__NJ	26.0	4.4	21.3	55.5%	81784
2030	New Onshore Wind	NY_ZNYWYO53NY_Z_F:NY (2018)	2018__NJ	26.0	4.4	21.3	55.5%	81784
2018	New Onshore Wind	NY_ZNYWYO51NY_Z_D:NY (2018)	2018__NJ	26.0	3.7	18.1	55.5%	87559
2020	New Onshore Wind	NY_ZNYWYO51NY_Z_D:NY (2018)	2018__NJ	26.0	3.7	18.1	55.5%	87559
2025	New Onshore Wind	NY_ZNYWYO51NY_Z_D:NY (2018)	2018__NJ	26.0	3.7	18.1	55.5%	87559
2030	New Onshore Wind	NY_ZNYWYO51NY_Z_D:NY (2018)	2018__NJ	26.0	3.7	18.1	55.5%	87559

Delaware

2018	New Onshore Wind	PJM_DEWYO12PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89382
2020	New Onshore Wind	PJM_DEWYO12PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89382
2025	New Onshore Wind	PJM_DEWYO12PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89382
2030	New Onshore Wind	PJM_DEWYO12PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89382

Illinois

2018	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018) 2018__IL	26.0	61.6	161.9	30%	89465
2020	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018) 2018__IL	26.0	61.6	161.9	30%	89465
2025	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018) 2018__IL	26.0	61.6	161.9	30%	89465
2030	New onshore wind	PJM_NJWYO12PJM_EMAC:NJ(2018) 2018__IL	26.0	61.6	161.9	30%	89465

Delaware

2018	New Onshore Wind	PJM_DEWYO13PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89557
2020	New Onshore Wind	PJM_DEWYO13PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89557
2025	New Onshore Wind	PJM_DEWYO13PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89557
2030	New Onshore Wind	PJM_DEWYO13PJM_EMAC:DE(2018) 2018__NJ	26.0	1.9	6.2	36.5%	89557

Various States

2018	Energy efficiency	EPA does not include EE until 2020					
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		PJM_NJEEFF1PJM_EMAC:NJ(2020)						
2020	Energy efficiency	2020__ MS		216.4	?	568.6	30%	93398
2030	Energy efficiency	PJM_NJEEFF1PJM_EMAC:NJ(2030)	2030__ KS	1203.2	?	3,161.9	30%	93741
		PJM_NJEEFF1PJM_EMAC:NJ(2030)						
2030	Energy efficiency	2030__ PA		1444.0	?	3,794.9	30%	93753
Virginia								
		PJM_VAPVU20PJM_WEST:VA(2018)						
2030	New Solar PV	2018__NJ		26.0	53.9	94.5	20.0%	98761
		PJM_VAWYO11PJM_DOM:VA (2018)						
2016	New Onshore Wind	2018__NJ		26.0	70.5	225.3	36.5%	107336
		PJM_VAWYO11PJM_DOM:VA (2018)						
2018	New Onshore Wind	2018__NJ		26.0	70.5	225.3	36.5%	107336
		PJM_VAWYO11PJM_DOM:VA (2018)						
2020	New Onshore Wind	2018__NJ		26.0	70.5	225.3	36.5%	107336
		PJM_VAWYO11PJM_DOM:VA (2018)						
2025	New Onshore Wind	2018__NJ		26.0	70.5	225.3	36.5%	107336
		PJM_VAWYO11PJM_DOM:VA (2018)						
2030	New Onshore Wind	2018__NJ		26.0	70.5	225.3	36.5%	107336
Nebraska								
	New Energy							
2025	Efficiency	SPP_NEEFF1SPP_NEBR:NE(2025)	2025__NJ	26.0	490.5	1,289.1	30.0%	129613
Illinois								
		MIS_ILHYNPD1MIS_IL:IL (2018)						
2020	New Hydro	2018__NPD__NJ		26.0	223.4	1,331.7	68.1%	170417
		MIS_ILHYNPD1MIS_IL:IL (2018)						
2025	New Hydro	2018__NPD__NJ		26.0	223.4	1,331.7	68.1%	170417
		MIS_ILHYNPD1MIS_IL:IL (2018)						
2030	New Hydro	2018__NPD__NJ		26.0	223.4	1,331.7	68.1%	170417

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Kentucky

2020	New Hydro	S_C_KYHYNPD1S_C_KY:KY (2018) 2018__NPD__NJ	26.0	22.6	118.6	59.8%	174419
2025	New Hydro	S_C_KYHYNPD1S_C_KY:KY (2018) 2018__NPD__NJ	26.0	22.6	118.6	59.8%	174419
2030	New Hydro	S_C_KYHYNPD1S_C_KY:KY (2018) 2018__NPD__NJ	26.0	22.6	118.6	59.8%	174419

Attachment B. Conflicting Energy Efficiency Output and Cost Estimates

Note: The various Excel files published by EPA present several different sets of capacity, generation, and cost estimates. The relationship among these is not clear, and EPA should clarify it.

EPA Source 1: EPA RPE files for Base Case, Rate-Based Case, and Mass-Based Case

Year	Basis	EGU number	State(s)	Capacity MW	Cost MM 2011\$
2020	Mass-based	42061	NJ	216.4	0
2025	"	42066	NJ	1,708.9	0
2030	"	42071	NJ	2,647.2	0
2020	Rate-based	93398	NJ, MS	216.4	0
2025	"	42066	NJ	1,708.9	0
2030	"	93741	NJ, KS	3,161.9	0
2030	"	93753	NJ, PA	3,794.9	0
All yrs.	Base Case	n/a	n/a	0	0

EPA Source 2: Illustrative Demand-Side Energy Efficiency Plan Scenario at 3% EPA Excel file: Copy of df-cpp-demand-side-ee-at3

Year	Net Cumul. Savings (GWh)	Capacity at 30% CF (MW)	Total Cost of EE (MM 2011 \$)	Annual 1 st -yr Costs (Total) MM 2011 \$
2020	531	202	55	467
2025	4,202	1,599	357	489
2030	6,514	2,479	519	479

Attachment C. Unexplained Major Decreases in Output

Year	Unit #	IPM Unit Code	EGU Name	MW	2025 GWh	2030 GWh	Change
2030	2967	PJM_NJCCXUC2122 2 EKC	Linden Gen. Sta. ST	277	1,224	591	-633
2030	2968	PJM_NJCCXUC2122 2 EKD	Linden Gen. Sta. CT	171	757	366	-391
2030	2969	PJM_NJCCXUC2122 2 EKE	Linden Gen. Sta. CT	171	757	487	-270
2030	2970	PJM_NJCCXUC2122 2 EKF	Linden Gen. Sta. ST	280	1,236	597	-639
2030	2971	PJM_NJCCXUC2122 2 EKG	Linden Gen. Sta. CT	173	764	369	-395
2030	2972	PJM_NJCCXUC2122 2 EKH	Linden Gen. Sta. CT	173	764	541	-223
			Subtotal	1,246	5,502	2,952	-2,551
2030	3029	PJM_NJCCJGC2122 5 EMM	Red Oak Power CT	165	1,255	1,119	-137
2030	3030	PJM_NJCCJGC2122 5 EMN	Red Oak Power CT	165	1,255	729	-527
2030	3031	PJM_NJCCJGC2122 5 EMO	Red Oak Power CT	165	1,255	985	-270
2030	3032	PJM_NJCCJGC2122 5 EMP	Red Oak Power ST	270	2,054	1,192	-862
			Subtotal	765	5,821	4,025	-1,796
2030			2-Facility Total	2,011	11,323	6,977	-4,346

Attachment D. New Jersey Solar Installations by Year as of 10/31/15

	Projects <= 10 kW			Projects > 10 kW			All Projects		
Year	# Projects	Total kW	Total Rebate \$	# Projects	Total kW	Total Rebate \$	# Projects	Total kW	Total Rebate \$
2001	3	7.5	\$ 37,145	-	-	\$ -	3	7.5	\$ 37,145
2002	30	97.9	\$ 481,790	7	525.6	\$ 1,942,904	37	623.5	\$ 2,424,694
2003	88	464.3	\$ 2,487,131	7	712.3	\$ 2,836,280	95	1,176.6	\$ 5,323,411
2004	269	1,542.3	\$ 8,445,046	20	475.2	\$ 2,136,929	289	2,017.5	\$ 10,581,975
2005	593	3,973.2	\$ 21,631,077	136	5,901.0	\$ 24,604,819	729	9,874.1	\$ 46,235,897
2006	718	4,675.5	\$ 24,314,420	149	13,612.6	\$ 53,772,366	867	18,288.1	\$ 78,086,786
2007	586	4,143.8	\$ 19,388,536	107	11,111.3	\$ 38,733,850	693	15,255.1	\$ 58,122,386
2008	643	4,413.6	\$ 18,134,721	190	18,297.6	\$ 26,788,695	833	22,711.3	\$ 44,923,416
2009	976	6,941.1	\$ 17,638,913	373	50,313.2	\$ 38,378,530	1,349	57,254.3	\$ 56,017,442
2010	2,231	15,530.8	\$ 20,150,610	900	116,847.9	\$ 25,810,580	3,131	132,378.7	\$ 45,961,190
2011	3,780	25,516.1	\$ 5,519,762	1,617	279,682.9	\$ 7,863,985	5,397	305,199.0	\$ 13,383,747
2012	3,944	25,784.4	\$ 1,094,005	1,958	391,543.0	\$ 1,295,752	5,902	417,327.4	\$ 2,389,758

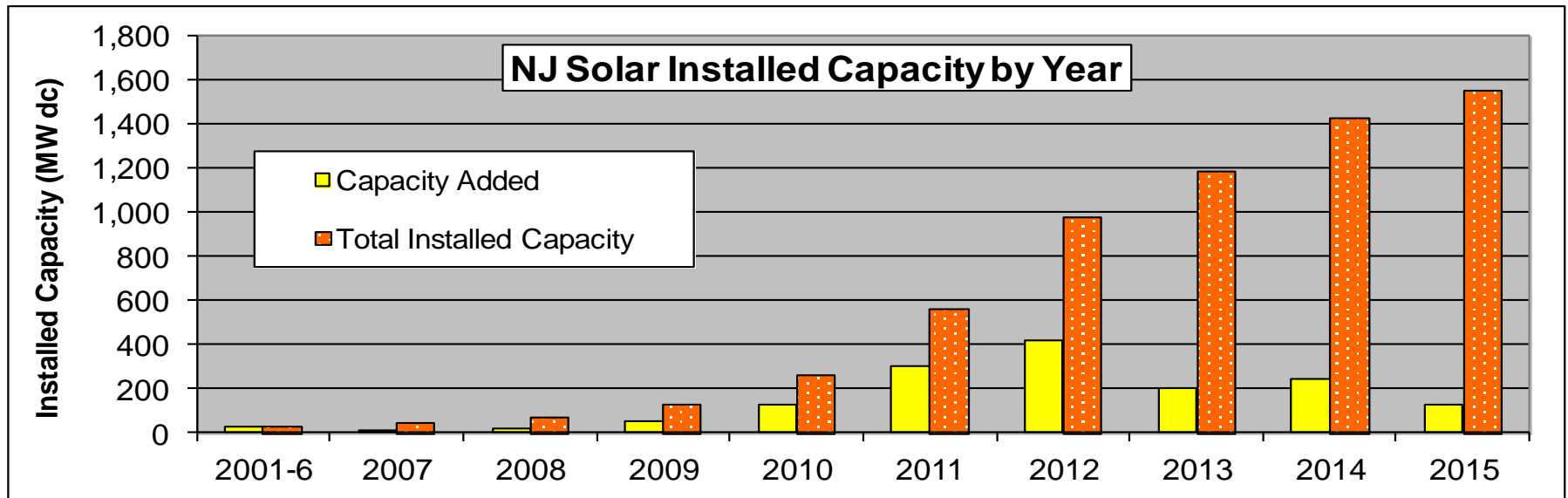
STATE OF NEW JERSEY TECHNICAL COMMENTS

USEPA Proposed Rule: Federal Plan Requirements for Greenhouse Gas Emissions
 From Electric Utility Generating Units Constructed on or Before January 8, 2014;
 Model Trading Rules; Amendments to Framework Regulations; Proposed Rule
 80 Fed. Reg. 64966 (October 23, 2015)
 Docket ID: EPA-HQ-OAR-2015-0199

2013	4,817	30,503.1	\$ 4,691	1,721	171,724.5	\$ -	6,538	202,227.6	\$ 4,691
2014	4,898	31,148.4	\$ -	1,622	216,275.5	\$ -	6,520	247,423.9	\$ -
2015	6,299	40,722.3	\$ -	1,891	84,238.4	\$ -	8,190	124,960.7	\$ -
Total	29,875	195,464.1	\$ 139,327,848	10,698	1,361,261.0	\$ 224,164,690	40,573	1,556,725.1	\$ 363,492,538

Total* = Program to date totals for Paid projects plus projects pending payment; preliminary results subject to true-up based upon inspection results.

Attachment E. NJ Solar Installed Capacity by Year



Attachment F. New Jersey Clean Energy Program Solar Project Pipeline by Interconnection Type as of 10/31/15

NJCEP Solar Project Pipeline By Interconnection Type As Of 10/31/15			
Interconnection Type	Project Qty	Total Capacity (KW dc)	% of Capacity
Behind the meter	9,890	147,175.7	34.4%
Direct Grid Supply	37	281,116.1	65.6%
Totals	9,927	428,291.7	100.0%